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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/759,953	01/16/2004	Kiyoshi Satoh	ASMJP.055DV1	8185

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EXAMINER	
LUND, JEFFRIE ROBERT	

ART UNIT	PAPER NUMBER
1763	

NOTIFICATION DATE	DELIVERY MODE
08/02/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com
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Office Action Summary	Application No.	Applicant(s)	
	10/759,953	SATOH ET AL.	
	Examiner	Art Unit	
	Jeffrie R. Lund	1763	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 April 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,6,8-19 and 45* is/are pending in the application.

4a) Of the above claim(s) *11-13* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,6,8-10,14-19 and 45* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. In view of the appeal brief filed on April 16, 2007, PROSECUTION IS HEREBY REOPENED. New grounds of rejection are set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

PARVIZ HASSANZADEH
SUPERVISORY PATENT EXAMINER

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 5-6, 8, 9, 15, 16, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shang et al, EP 0 697 467, in view of Lorimer et al, U.S. Patent 5,069,938, Iyer, U.S. Patent 6,498,109, and Fong et al, US 5,812,403.

Shang et al teaches a chemical vapor deposition apparatus comprising: a deposition reaction chamber 10; a plasma discharge chamber 46 that is provided remotely from the reaction chamber and is capacitively coupled RF plasma source (column 6 lines 39-43) supplying power of 500 to 1,500 W; a source of fluorine containing cleaning gas 44 connected to the plasma discharge chamber; stainless steel piping 57 that links the reaction chamber and the remote plasma discharge chamber. The energy coupled to the remote plasma discharge chamber activates fluorine containing cleaning gas within the plasma discharge chamber, and the activated fluorine species in the cleaning gas are brought into the inside of the reaction chamber through the piping and changes solid substances adhered to the inside of the reaction chamber as a consequence of film formation, to gaseous substances, thereby cleaning the inside of the reaction chamber (see fig. 1 and its description).

Shang et al does not disclose that the piping, valve, and wall of the plasma discharge chamber is made of an aluminum, specifically, a fluorine-passivated aluminum; the plasma discharge chamber includes a radio frequency (RF) energy source that operates at a frequency between about 300 kHz and about 500 kHz; and valve positioned in the piping that links the reaction chamber and the remote plasma discharge chamber having an opening of the valve is sized, when fully opened, substantially equal in width to an inner surface of the piping, and the valve does not

have projections, when fully opened, with respect to the inner surface of the piping, and thus have a pressure drop of less that 0.1 torr.

Lorimer et al teaches providing a corrosion-resistant protective coating over aluminum surfaces exposed to halogen gases and plasmas. Lorimer et al further teaches that using coated aluminum in place of stainless steel. (Entire document)

Iyer teaches a plasma processing apparatus (see fig. 1) that includes: a remote plasma discharge chamber 12 with oppositely placed electrodes (capacitively coupled), inductive coils (inductively coupled) or a microwave source for forming a plasma remotely; and an RF power source 28 that supplies 50 watts to 5Kw at a frequency between 10 kHz and 200 MHz (see col. 3-lines 24-60) to the remote plasma chamber. (Entire document)

Fong et al disclose an apparatus comprising a gate valve (through valve) 280 positioned between a remote plasma chamber 55 and a reaction chamber. The valve has an opening sized, when fully opened, substantially equal in width to the inner surface of the piping 47, and does not have projections with respect to the inner surface of the piping. Therefore, the valve, when fully open, defines a pressure drop across the valve of less than about 0.1 Torr. (See figures 3 and 6a)

The motivation of making the remote plasma chamber of Shang et al with a fluorine-passivated aluminum wall is to prevent corrosion of the aluminum as it is exposed to the fluorine plasma as taught by Lorimer et al.

The motivation for replacing the stainless steel pipe of Shang et al with a fluorine-passivated aluminum pipe is to reduce the cost of manufacture since fluorine-

passivated aluminum costs 1/15 the price of passivated stainless steel, as taught by Lorimer et al (column 2 lines 3-13).

The motivation for replacing the generic RF power source of Shang et al with the specific RF power source of Iyer is to provide a specific RF power source that supplies a specific power at a specific frequency, as required by Shang et al but not disclosed.

The motivation for adding the a gate valve to the pipe connecting the remote plasma chamber and the processing chamber is to prevent cleaning gas from flowing into the processing chamber from the remote plasma chamber during processing of a substrate and preventing processing gas from the processing gas source 32 from flowing into the remote plasma chamber as taught Fong et al.

The motivation for making the valve out of fluorine-passivated aluminum is to protect the valve from corrosion as taught by Lorimer et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to: make the remote plasma chamber, pipes and valve of Shang et al out of fluorine-passivated aluminum as taught by Lorimer et al; replace the generic RF power source of Shang et al with the specific RF power source of Iyer to provide the required power at the required frequency; and add the gate valve Fong et al in order to open or block the activated cleaning gas passage 47 thereby introducing the activated cleaning gas into the processing chamber or stopping the activated cleaning gas from entering the processing chamber, and preventing processing gases from entering the remote plasma chamber as taught by Fong et al.

4. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shang

et al, EP 0 697 467, Lorimer et al, US Patent 5,069,938, and Iyer, US Patent 6,498,109, and Fong et al, US 5,812,403, as applied to claims 1-3, 5-6, 8, 9, 15, 16, and 45 above, and further in view of Ikeda, U.S. Patent 6,033,479.

Shang et al, Lorimer et al, Iyer, and Fong et al differ from the present invention in that they do not teach that the valve and piping are heated to prevent the deposition of the cleaning gas.

Ikeda teaches a heating zone 70 that heats valves and pipes to prevent deposition of the process gas. (Figure 2)

The motivation for heating the pipe and valve of Shang et al, Lorimer et al, Iyer, and Fong et al is to prevent deposition of the cleaning gas as taught by Ikeda.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to heat the pipe and valve of Shang et al, Lorimer et al, Iyer, and Fong et al as taught by Ikeda.

5. Claims 14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shang et al, EP 0 697 467, Lorimer et al, US Patent 5,069,938, and Iyer, US Patent 6,498,109, and Fong et al, US 5,812,403, as applied to claims 1-3, 5-6, 8, 9, 15, 16, and 45 above, and further in view of Noble et al, U.S. Patent 6,450,116.

Shang et al, Lorimer et al, Iyer, and Fong et al differ from the present invention in that they do not teach: the piping between the plasma discharge chamber and the reaction chamber is straight without obstruction and at least ½ inch in diameter; reaction gas inlet and outlet defining a horizontal flow across a substrate surface upon which material is deposited within the reaction chamber; and the piping opens into the reaction

chamber downstream of the inlet and upstream of a substrate support configured for supporting a substrate within the chamber.

Noble et al disclose a remote plasma source 300 connected to the reaction chamber 213 via a straight pipe 360 having a diameter of 1 inch such that the reactive species pass from the remote plasma source to the reaction chamber without obstruction. The pipe 360 opens into the reaction chamber downstream of the inlet 269 and upstream of a substrate support 262 configured for supporting a substrate 100 within the chamber, and the reactive species entering into the reaction chamber 213 from the inlet 275 and passing in a horizontal flow across the substrate 100 in the reaction chamber and being exhausted via 270. (Figures 3A, 3B and its description)

The motivation for making the pipe of Shang et al, Lorimer et al, Iyer, and Fong et al, straight without any obstruction and with a diameter of at least ½ an inch in diameter is to provide an alternate arrangement of the reaction chamber and the plasma discharge chamber so that radicals can be efficiently delivered to the reaction chamber as taught by Noble et al.

The motivation for placing the pipe such that a horizontal flow across the substrate is produced in the apparatus of Shang et al, Lorimer et al, Iyer, and Fong et al is to provide an alternate arrangement of the reaction chamber and the plasma processing chamber as taught by Noble et al. Furthermore, it was held that the rearrangement of parts is obvious (see *In re Japikse* 86 USPQ 70).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the pipe of Shang et al, Lorimer et al, Iyer, and Fong et

al straight without any obstruction and with a diameter of greater of ½ or an inch as taught by Noble; and to position the pipe of Shang et al, Lorimer et al, Iyer, and Fong et al such that a horizontal flow across the substrate is produced as taught by Noble et al.

6. If it is determined that generic gate vale described by Fong et al does not teach that the opening of the valve is sized, when fully opened, substantially equal in width to an inner surface of the piping, and the valve does not have projections, when fully opened, with respect to the inner surface of the piping, and thus have a pressure drop of less that 0.1 torr, the following rejections are provided.

7. Claims 1-3, 5-6, 8, 9, 15, 16, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shang et al, EP 0 697 467, in view of Lorimer et al, U.S. Patent 5,069,938, Iyer, U.S. Patent 6,498,109, and Fong et al, US 5,812,403, in view of Hackman et al, US Patent 3,963,214.

Shang et al teaches a chemical vapor deposition apparatus comprising: a deposition reaction chamber 10; a plasma discharge chamber 46 that is provided remotely from the reaction chamber and is capacitively coupled RF plasma source (column 6 lines 39-43) supplying power of 500 to 1,500 W; a source of fluorine containing cleaning gas 44 connected to the plasma discharge chamber; stainless steel piping 57 that links the reaction chamber and the remote plasma discharge chamber. The energy coupled to the remote plasma discharge chamber activates fluorine containing cleaning gas within the plasma discharge chamber, and the activated fluorine species in the cleaning gas are brought into the inside of the reaction chamber through the piping and changes solid substances adhered to the inside of the reaction chamber

as a consequence of film formation, to gaseous substances, thereby cleaning the inside of the reaction chamber (see fig. 1 and its description).

Shang et al does not disclose that the piping, valve, and wall of the plasma discharge chamber is made of an aluminum, specifically, a fluorine-passivated aluminum; the plasma discharge chamber includes a radio frequency (RF) energy source that operates at a frequency between about 300 kHz and about 500 kHz; and valve positioned in the piping that links the reaction chamber and the remote plasma discharge chamber having an opening of the valve is sized, when fully opened, substantially equal in width to an inner surface of the piping, and the valve does not have projections, when fully opened, with respect to the inner surface of the piping, and thus have a pressure drop of less that 0.1 torr.

Lorimer et al teaches providing a corrosion-resistant protective coating over aluminum surfaces exposed to halogen gases and plasmas. Lorimer et al further teaches that using coated aluminum in place of stainless steel. (Entire document)

Iyer teaches a plasma processing apparatus (see fig. 1) that includes: a remote plasma discharge chamber 12 with oppositely placed electrodes (capacitively coupled), inductive coils (inductively coupled) or a microwave source for forming a plasma remotely; and an RF power source 28 that supplies 50 watts to 5Kw at a frequency between 10 kHz and 200 MHz (see col. 3-lines 24-60) to the remote plasma chamber. (Entire document)

Fong et al disclose an apparatus comprising a gate valve (through valve) 280 positioned between a remote plasma chamber 55 and a reaction chamber. The valve

has an opening sized, when fully opened, substantially equal in width to the inner surface of the piping 47, and does not have projections with respect to the inner surface of the piping. Therefore, the valve, when fully open, defines a pressure drop across the valve of less than about 0.1 Torr. (See figures 3 and 6a)

The motivation of making the remote plasma chamber of Shang et al with a fluorine-passivated aluminum wall is to prevent corrosion of the aluminum as it is exposed to the fluorine plasma as taught by Lorimer et al.

The motivation for replacing the stainless steel pipe of Shang et al with a fluorine-passivated aluminum pipe is to reduce the cost of manufacture since fluorine-passivated aluminum costs 1/15 the price of passivated stainless steel, as taught by Lorimer et al (column 2 lines 3-13).

The motivation for replacing the generic RF power source of Shang et al with the specific RF power source of Iyer is to provide a specific RF power source that supplies a specific power at a specific frequency, as required by Shang et al but not disclosed.

The motivation for adding the a gate valve to the pipe connecting the remote plasma chamber and the processing chamber is to prevent cleaning gas from flowing into the processing chamber from the remote plasma chamber during processing of a substrate and preventing processing gas from the processing gas source 32 from flowing into the remote plasma chamber as taught Fong et al.

The motivation for making the valve out of fluorine-passivated aluminum is to protect the valve from corrosion as taught by Lorimer et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time

the invention was made to: make the remote plasma chamber, pipes and valve of Shang et al out of fluorine-passivated aluminum as taught by Lorimer et al; replace the generic RF power source of Shang et al with the specific RF power source of Iyer to provide the required power at the required frequency; and add the gate valve Fong et al in order to open or block the activated cleaning gas passage thereby introducing the activated cleaning gas into the processing chamber or stopping the activated cleaning gas from entering the processing chamber, and preventing processing gases from entering the remote plasma chamber as taught by Fong et al.

Shang et al, Lorimer et al, Iyer, and Fong et al differ from the present invention in that they do not teach a specific gate valve that is sized, when fully opened, substantially equal in width to an inner surface of the piping, and the valve does not have projections, when fully opened, with respect to the inner surface of the piping, and thus have a pressure drop of less that 0.1 torr.

Hackman et al teaches a gate valve that is sized, when fully opened, substantially equal in width to an inner surface of the piping, and the valve does not have projections, when fully opened, with respect to the inner surface of the piping. Thus, the valve has a pressure drop of less than 0.1 torr. (Figures 1 and 4)

The motivation for replacing the generic gate valve of Shang et al, Lorimer et al , Iyer, Fong et al, and Hackman et al is to provide a specific gate valve as required by Shang et al, Lorimer et al , Iyer, Fong et al, and Hackman et al but only generically described.

Therefore it would have been obvious to one of ordinary skill in the art at the time

the invention was made to replace the generic gate valve of Shang et al, Lorimer et al, Iyer, Fong et al, and Hackman et al with the specific gate valve taught by Hackman et al.

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shang et al, EP 0 697 467, Lorimer et al, US Patent 5,069,938, and Iyer, US Patent 6,498,109, Fong et al, US 5,812,403, and Hackman et al, US Patent 3,963,214, as applied to claims 1-3, 5-6, 8, 9, 15, 16, and 45 above, and further in view of Ikeda, U.S. Patent 6,033,479.

Shang et al, Lorimer et al, Iyer, Fong et al, and Hackman et al differ from the present invention in that they do not teach that the valve and piping are heated to prevent the deposition of the cleaning gas.

Ikeda teaches a heating zone 70 that heats valves and pipes to prevent deposition of the process gas. (Figure 2)

The motivation for heating the pipe and valve of Shang et al, Lorimer et al, Iyer, Fong et al, and Hackman et al is to prevent deposition of the cleaning gas as taught by Ikeda.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to heat the pipe and valve of Shang et al, Lorimer et al, Iyer, Fong et al, and Hackman et al as taught by Ikeda.

9. Claims 14, and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shang et al, EP 0 697 467, Lorimer et al, US Patent 5,069,938, and Iyer, US Patent 6,498,109, Fong et al, US 5,812,403, and Hackman et al, US Patent 3,963,214,

as applied to claims 1-3, 5-6, 8, 9, 15, 16, and 45 above, and further in view of Noble et al, U.S. Patent 6,450,116.

Shang et al, Lorimer et al, Iyer, Fong et al, and Hackman et al differ from the present invention in that they do not teach: the piping between the plasma discharge chamber and the reaction chamber is straight without obstruction and at least ½ inch in diameter; reaction gas inlet and outlet defining a horizontal flow across a substrate surface upon which material is deposited within the reaction chamber; and the piping opens into the reaction chamber downstream of the inlet and upstream of a substrate support configured for supporting a substrate within the chamber.

Noble et al disclose a remote plasma source 300 connected to the reaction chamber 213 via a straight pipe 360 having a diameter of 1 inch such that the reactive species pass from the remote plasma source to the reaction chamber without obstruction. The pipe 360 opens into the reaction chamber downstream of the inlet 269 and upstream of a substrate support 262 configured for supporting a substrate 100 within the chamber, and the reactive species entering into the reaction chamber 213 from the inlet 275 and passing in a horizontal flow across the substrate 100 in the reaction chamber and being exhausted via 270. (Figures 3A, 3B and its description)

The motivation for making the pipe of Shang et al, Lorimer et al, Iyer, Fong et al, and Hackman et al, straight without any obstruction and with a diameter of at least ½ an inch in diameter is to provide an alternate arrangement of the reaction chamber and the plasma discharge chamber so that radicals can be efficiently delivered to the reaction chamber as taught by Noble et al.

The motivation for placing the pipe such that a horizontal flow across the substrate is produced in the apparatus of Shang et al, Lorimer et al, Iyer, Fong et al, and Hackman et al is to provide an alternate arrangement of the reaction chamber and the plasma processing chamber as taught by Noble et al. Furthermore, it was held that the rearrangement of parts is obvious (see *In re Japikse* 86 USPQ 70).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the pipe of Shang et al, Lorimer et al, Iyer, Fong et al, and Hackman et al straight without any obstruction and with a diameter of greater of ½ or an inch as taught by Noble; and to position the pipe of Shang et al, Lorimer et al, Iyer, Fong et al, and Hackman et al such that a horizontal flow across the substrate is produced as taught by Noble et al.

Response to Arguments

10. Applicant's arguments with respect to claims 1-3, 5, 6, 8-10, 14-19, and 45 have been considered but are moot in view of the new ground(s) of rejection.

11. Applicant's arguments filed April 16, 2007 have been fully considered but they are not persuasive.

a. The arguments entitled "***1. No Motivation for Why One of Skill in the Art Would Have Chosen the Specific Valve for the Specific Combination has been Provided***", the Examiner disagrees. Fong et al clearly teaches placing a **gate valve** between the processing chamber and the remote plasma chamber to control the flow of gases from the remote plasma chamber. Furthermore, gate

valves are specifically designed to be fully open/fully closed valves (see Gate valve – Wikipedia). Thus one of ordinary skill in the art, reading Fong et al would be motivated to place a gate valve in the apparatus of Shang et al, which teaches no valve, to open or close the pipe connecting the remote plasma source. The Examiner notes that the statement:

> Appellants note that numerous references taught a variety of valves in the same or similar location as Shang ('467). For example, Shang et al. (U.S. Pat. No. 5,788,778, hereinafter "Shang ('778)") taught that a needle valve is to be used between a remote plasma cleaning chamber and a CVD chamber (i.e., exactly at the recited location).6 Furthermore, other references taught numerous valve types (e.g., Yin et al., PCT Pub. No. WO 99/20812, item 225, FIG. 4; Sun et al., Pat. Pub. No. 2002/0033183, item 62; and Fukuda et al., U.S. Pat. Pub. No. 2005/0139578, item 15) that were also employed.
>
> What is clear from these references, and the art in general, is that one of skill in the art was aware of numerous types of valves that could be employed. However, what is not clear from the cited art and the Office Action is why one would have employed the valve in Fong over the valve in Shang ('.778) or any one of the other numerous valves noted above. Appellants note that nothing in Shang ('467), Fong, or the other cited references actually teaches why or how the "gate valve" in Fong is useful, apart from it serving the same function as other valves. As such, none of the cited references (alone or when combined) appear to provide a motivation for why one would have selected valves with the presently recited features (low pressure drop or lack of internal projections when open) in the presently claimed combination.

Is incorrect. Needle valves are used to control the flow of the gas through the valve, while gate valves are not designed to or suited for regulating the flow of the gases (see Gate valves – Wikipedia).

b. In regard to the argument "***2. It is Legal Error for the Examiner to Ignore Teachings in the Prior Art***", the Examiner disagrees. The Applicant has overstated the case law. For example, the Applicant argues that "Contrary to this finding, Appellants submit that the prior art, as a whole must be considered.[11]", and refers to *W.L. Gore & Associates, Inc. v. Garlock, Inc.*, 721 F.2d 1540, 220 USPQ 303 (Fed. Cir. 1983), cert. denied, 469 U.S. 851 (1984) which teaches that "A prior art **reference** must be considered in its entirety, i.e., as a whole,

including portions that would lead away from the claimed invention." (emphasis added) Thus the cited case law refers to a single reference used in a rejection not references not applied to the rejection. The Applicant further states that "It is well established that the *totality* of the prior art must be considered, and that proceeding contrary to accepted wisdom in the art is evidence of nonobviousness. (See, In re Dow Chemical Co., 837 F.2d 469, 473, 5 USPQ2d 1529, 1532 (emphasis added, Fed. Cir. 1988) ("...the full field of the invention must be considered.., the person of ordinary skill is charged with knowledge of the entire body of technological literature, including that which might lead away from the claimed invention.")). The Applicant has ignored the teaching of Fong et al, which is part of the prior art and clearly teaches the use of gate valves.

c. In regard to the argument "***3. The Prior Art Taught Away from the Use of a Through-Flow Valve in Cleaning***", the Examiner disagrees. The Applicant cannot prove nonobviousness just by showing that the art teaches different ways of doing something (i.e. using a needle valve or flow restricting valve) when it also teaches the claimed way of doing something. As noted above, "the person of ordinary skill is charged with knowledge of the entire body of technological literature", therefore, one of ordinary skill in the art would be aware of the general uses of gate valves and the specific use of gate valves in lines between the remote plasma chamber and the processing chamber as taught by the patents to Fong et al.

d. In regard to the argument "***4. The Examiner has not Demonstrated that***

the Claimed Valve is Inherently Taught by FIGs 6A and 3 of Fong", the Examiner disagrees. The Examiner has cited an excerpt from Wikipedia to demonstrate minimum knowledge known by one of ordinary skill in the art. The excerpt clearly points out that "When fully open, the typical gate valve has no obstruction in the flow path, resulting in very low friction loss." (emphasis added) Thus one of ordinary skill in the art would know that the typical gate valve has not obstruction in the flow path, and would interpret the figures of Fong et al as being a typical gate valve with on obstruction in the flow path and having very low friction loss. The newly cite art all show gate valves with no obstruction in the flow path when fully open.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (10:00 am - 9:00 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
7/23/07